

MEMORY CONTROLLER FOR CONTROLLING MEMORY ACCESSES ACROSS
NETWORKS IN DISTRIBUTED SHARED MEMORY PROCESSING SYSTEMS

Abstract of the Disclosure

5 A shared memory parallel processing system
interconnected by a multi-stage network combines new system
configuration techniques with special-purpose hardware to
provide remote memory accesses across the network, while
controlling cache coherency efficiently across the network.
10 The system configuration techniques include a systematic
method for partitioning and controlling the memory in
relation to local verses remote accesses and changeable
verses unchangeable data. Most of the special-purpose
hardware is implemented in the memory controller and network
15 adapter, which implements three send FIFOs and three receive
FIFOs at each node to segregate and handle efficiently
invalidate functions, remote stores, and remote accesses
requiring cache coherency. The segregation of these three
functions into different send and receive FIFOs greatly
20 facilitates the cache coherency function over the network.
In addition, the network itself is tailored to provide the
best efficiency for remote accesses.